VPA PERMIT PROGRAM FACT SHEET

This document provides pertinent information concerning the VPA permit listed below. This permit includes land application of treated effluent from the Cooke Campsite Sewage Treatment Plant (STP) located at Fort A.P. Hill.

1. Facility Name and Address:

   Cooke Campsite Sewage Treatment Plant
   Fort A.P. Hill
   Bowling Green, VA 22427

   County: Caroline

   Legal Name of Owner and Address:

   American Water Operations & Maintenance
   1025 Laurel Oak Road
   Voorhees, NJ 08043

2. VPA Permit No.: VPA00008

3. SIC Code(s): 4952

4. Facility Contact:

   Name: Joe Tackett
   Title: Regional Operations Manager
   Telephone no.: 804-632-1406

5. Permit Application Information:

Application submitted by:	American Water Operations & Maintenance
Address (if different than owner's address):	
Application receipt date:	31 January 2011
Additional information requested:	
Additional information received:	
Application complete date:	22 March 2011

6. Permit Processing Information:

DEQ Regional Office:		Northern Regional Office
Site Inspection performed by:		Beth Biller (**Attachment 1**)
Date of site inspection :		20 June 2011
Date of public meeting for permit application: *		
Permit drafted by:		Douglas Frasier
Date permit drafted:		10 May 2011
Draft permit reviewed by:		Anna Westernik
Date draft permit reviewed:		12 May 2011
Draft permit reviewed by:		Bryant Thomas
Date draft permit reviewed:		25 May 2011
Dates of public comment period:	From:	1 July 2011
	To:	1 August 2011

*A public meeting is only required for certain applications to authorize land application of biosolids, treated municipal wastewater and stabilized septage.

7. Permit Characterization:

Permit Action	
☐ Issuance	☐ Owner modification
☒ Reissuance	☐ Board initiated modification
☐ Revocation and reissuance	☐ Interim authorization
☐ Enforcement action	☐ Other:

Facility	
☒ Existing facility	☒ Municipal
☐ Proposed facility	☐ Industrial
☐ Federal	☐ Animal feeding operation / poultry waste management
☐ State	☐ Reclamation system or satellite reclamation system
☐ Public	☐ Reclaimed water distribution system
☒ Private	☐ Other:

Permit Type	
☐ Biosolids distribution, marketing, storage and land application: ☐ Frequent ☐ Infrequent	☐ Land treatment of wastewater: ☐ Industrial ☐ Municipal
☐ Land application / storage of animal waste	☐ Land application of industrial sludge
☐ Water reclamation and reuse	☐ Land application of water plant residuals
☒ Land application of municipal wastewater	☐ Land application of septage
☐ Pump and haul*	☐ Other:

* Pump and haul of wastewater other than sewage. Pump and haul of sewage is regulated by the Virginia Department of Health in accordance with the Sewage Handling and Disposal Regulations (12VAC5-610).

8. Licensed Operator Requirements: Class IV

9. Reliability Class: Class II

10. Pollution Management Activity Description:

This facility receives sewage via gravity collection system from Cooke Campsite – a military training facility. It should be noted that the training facility is rarely used presently. Prior to entering the two aerated oxidation ponds, the effluent passes through two grease traps; one at the mess hall and one at the headworks of the treatment plant. Septage and grease are pumped and hauled from these grease traps as needed.

The supernatant from the holding ponds (Latitude 38° 09′ 04″ / Longitude 77° 11′ 33″) travels to a contact chamber where it is disinfected by gaseous chlorination. The chlorinated effluent is transferred via booster pumps located in a heated building and is pumped through 2″ piping to sprinkler heads to be land applied (**Attachment 2** for treatment system diagram).

The spray field consists of two zones. Zone 1 has three (3) sprinklers capable of dispersing 33 gpm of sewage; Zone 2 has four (4) sprinklers capable of dispersing 44 gpm of sewage. The area covered by the sprinklers in these two zones is 0.6 and 0.8 acres, respectively. The total application area consists of 2.6 acres. The application area is planted in Orchardgrass and harvested once per year. The harvest yields on average 110 to 130 bales which are utilized for erosion control measures at the installation.

Approximately 75% of the soils in the spray field are comprised of Altavista sandy loam. These soils are moderately well drained; have a moderate available water capacity of approximately 6.6 inches; a moderately high to high hydraulic conductivity of 0.57 to 1.98 in/hr; and depth to the water table is typically 18 – 30 inches.

All sludge/solids produced during normal operation of this lagoon system remain within the system. Essentially, there is no further treatment of the sludge other than the natural breakdown of the material within the lagoon.

11. Location Description: See **Attachment 3** for the Port Royal topographic map.

The effluent spray irrigation field for the Cooke Campsite STP is located approximately 500 meters from the treatment lagoons and 50 meters from Custer Trail (Latitude 38° 08′ 55″ / Longitude 77° 11′ 47″). There are no water intakes or significant discharges within a one (1) mile radius of this location.

12. Part I.A Limits and Monitoring Requirements:

A. **Effluent Limitations/Monitoring Requirements**

Monitoring Point: Storage Pond prior to Irrigation.
Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS	MONITORING REQUIREMENTS	
			Frequency	Sample Type
Flow (MGD)	NA	NL	Continuous	TIRE
pH	1,3	6.0 S.U. – 9.0 S.U.	1/D	Grab
BOD_5	2,3	60 ppm maximum	1/M	Composite
Total Suspended Solids (TSS)	1	60 ppm maximum	1/M	Composite
Oil and Grease	1	NL ppm	1/M	Grab
E. coli (Geometric Mean)	1,2	NL n/100 mL	1/M	Grab
Total Residual Chlorine [(a)]	2,3	2.0 ppm minimum	1/D	Grab
Total Kjeldahl Nitrogen (TKN)	2,3	NL ppm	1/M	Composite
Ammonia, as N	2,3	NL ppm	1/M	Composite
Nitrate, as N	2,3	NL ppm	1/M	Composite
Phosphorus (P_2O_5)	3	NL ppm	1/M	Composite
Phosphorus (P_2O_5) (Year to Date) [(b)]	1	NL lb/acre	1/M	Calculated
Potassium (K_2O)	3	NL ppm	1/M	Composite
Sodium, Total	3	NL ppm	1/Y	Composite
Magnesium, Total	1	NL ppm	1/Y	Composite
Calcium, Total	1	NL ppm	1/Y	Composite
Boron, Total	1	NL ppm	1/Y	Composite
Cadmium, Total Recoverable	1,3	NL ppb	1/5Y	Grab
Chromium, Total Recoverable	1	NL ppb	1/5Y	Grab
Copper, Total Recoverable	1,3	NL ppb	1/5Y	Grab
Lead, Total Recoverable	1,3	NL ppb	1/5Y	Grab
Mercury, Total Recoverable	1,3	NL ppb	1/5Y	Grab
Nickel, Total Recoverable	1,3	NL ppb	1/5Y	Grab
Zinc, Total Recoverable	1,3	NL ppb	1/5Y	Grab
Volume in Storage	1	NL MG	1/M	Calculated
Lagoon Freeboard [(c)]	4	1 ft minimum	1/M	Measured
Hourly Irrigation Rate	2,3	See Special Condition 12	1/D	Calculated
Daily Irrigation Rate	2,3	See Special Condition 12	1/D	Calculated
Weekly Irrigation Rate	2,3	See Special Condition 12	1/W	Calculated
Total Volume to Site	2,3	gal/acre/month	1/M	Calculated
Plant Available Nitrogen	2,3	NL lb/acre	1/M	Calculated
Plant Available Nitrogen (Year to Date) [(d)]	1	NL lb/acre	1/M	Calculated
Sodium Adsorption Ratio (SAR) [(e)]	1	NA	1/M	Calculated

The basis for the limitations codes are:

1. Best Professional Judgement
2. 9VAC25-790 (SCAT Regulations)
3. Interim Guidance #01-2005
4. VPA Permit Manual

MGD = Million gallons per day.
NA = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.
TIRE = Totalizing, indicating and recording equipment.

1/D = Once every day.
1/W = Once every week.
1/M = Once every month.
1/Y = Once every calendar year.
1/5Y = Once every five years.

Composite = A flow proportional composite sample collected manually or automatically, and discretely or continuously. Where discrete sampling is employed, the permittee shall collect a minimum of four (4) aliquots for compositing. Discrete sampling may be flow proportioned either by varying the time interval between each aliquot or the volume of each aliquot. Time composite samples consisting of a minimum four (4) grab samples obtained at hourly or smaller intervals may be collected where the permittee demonstrates that the discharge flow rate (gallons per minute) does not vary by 10% or more during the monitored discharge.

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

[a] Effluent sampling for TRC shall be performed after storage and chlorination.

[b] The total loading rate shall not exceed the Phosphorus removal rate of the chosen crop.

[c] Freeboard shall be reported monthly regardless if a discharge occurs.

[d] The total loading rate shall not exceed the Plant Available Nitrogen requirements of the chosen crop.

[e]

$$SAR = \frac{Na}{\sqrt{0.5\,(Ca + Mg)}}$$

Where: Na = sodium in meq/L

Ca = calcium in meq/L

Mg = magnesium in meq/L

B. **Soil Monitoring Requirements**

Monitoring Point: Irrigation field.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	LIMITATIONS	MONITORING REQUIREMENTS	
			Frequency [a]	Sample Type [b]
Exchangeable Calcium	3	NL ppm	1/Y	Composite
Exchangeable Magnesium	3	NL ppm	1/Y	Composite
Exchangeable Potassium	3	NL ppm	1/Y	Composite
Exchangeable Sodium	3	NL ppm	1/Y	Composite
Exchangeable Sulfur	3	NL ppm	1/Y	Composite
Exchangeable Sodium Percentage (ESP) [c]	3	Percent	1/Y	Calculated
Cation Exchange Capacity (CEC)	3	meq/100 g	1/Y	Composite
Phosphorus [d]	3	NL ppm	1/Y	Composite
Ammonia Nitrogen	3	NL ppm	1/Y	Composite
Organic Nitrogen	3	NL ppm	1/Y	Composite
Soil pH	3	S.U.	1/Y	Composite
Soil Organic Matter	3	Percent	1/Y	Composite
Base Saturation	3	Percent	1/Y	Calculated
Hydraulic Conductivity [e]	3	Inches/hour	1/5Y	Composite
Particle Size Analysis	3	Percent	1/5Y	Composite
Cadmium, Total Recoverable	3	NL ppb	1/5Y	Composite
Chromium, Total Recoverable	3	NL ppb	1/5Y	Composite
Copper, Total Recoverable	3	NL ppb	1/5Y	Composite
Lead, Total Recoverable	3	NL ppb	1/5Y	Composite
Manganese, Total Recoverable	3	NL ppb	1/5Y	Composite
Nickel, Total Recoverable	3	NL ppb	1/5Y	Composite
Zinc, Total Recoverable	3	NL ppb	1/5Y	Composite

The basis for the limitations codes are:

1. Best Professional Judgement
2. 9VAC25-790 (SCAT Regulations)
3. 9VAC25-32-490 (VPA Regulations)

NA = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.

1/Y = Once every calendar year.
1/5Y = Once every five years.

[a] Soil samples shall be collected during the month of October and results submitted to DEQ-NRO on or before January 10th of the following year.

[b] Soil composite samples shall be representative of the predominant soil type within the irrigation field. Samples shall be taken 0 – 6 inches deep in the effluent application area. The most restrictive soil horizon shall be used when sampling for metals, subsurface particle size and soil hydraulic conductivity.

[c]

$$ESP = \frac{Na \times 100}{CEC}$$

Where: Na = sodium in meq/L

[d] The permittee shall use the Mehlich I procedure to determine the phosphorus soil level.

[e] If the Hydraulic Conductivity value is found to decrease significantly as determined by DEQ-NRO, the sampling frequency may be increased.

C. **Monitoring Requirements**

Monitoring Point: Groundwater Monitoring Wells.
Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	LIMITATIONS	MONITORING REQUIREMENTS	
			Frequency [a]	Sample Type [b]
Static Water Level	3	NL ft/in	2/Y	Measured
pH	3	NL S.U.	2/Y	Grab
Conductivity	3	NL µmhos/cm	2/Y	Grab
Chlorides	3	NL ppm	2/Y	Grab
Nitrate, as N	3	NL ppm	2/Y	Grab
Alkalinity as $CaCO_3$	3	NL ppm	2/Y	Grab
E. coli	3	NL n/100 mL	2/Y	Grab

The basis for the limitations codes are:

1. Best Professional Judgement
2. 9VAC25-790 (SCAT Regulations)
3. Interim Guidance #01-2005

NA = Not applicable.
NL = No limit; monitor and report.
S.U. = Standard units.

2/Y = Twice every calendar year.

[a] The monitoring period shall be January – June and July – December of each calendar year.

[b] Sampling shall be conducted per the 17 October 2003 approved groundwater monitoring plan.

13. Special Conditions:

A. Permit Section Part I.B. The Total Residual Chlorine (TRC) limitations were established to ensure adequate disinfection of the treated effluent. Minimum chlorine residual must be maintained at the exit of the chlorine contact. There shall be no more that 10% of the monthly test results for TRC at the exit of the chlorine contact tank shall be < 2.0 mg/L with any TRC < 0.6 mg/L considered a system failure. *E. coli* limits are defined in this section as well as monitoring requirements to take effect should an alternate means of disinfection be used.

B. General Special Conditions

1). Prohibition of Point Source Discharge. There shall be no discharge of pollutants to surface waters from this operation except in the case of a storm even greater than a 25-year, 24-hour storm.

Basis: VPA Permit Regulation 9VAC25-32-30.A.

2). 95% Capacity Reopener. Requires all POTWs and PVOTWs to develop and submit a plan of action to DEQ when the monthly average influent flow reaches 95% of the design capacity authorized in the permit for each month of any consecutive three-month period.

Basis: VPA Permit Regulation 9VAC25-32-90.B.1. through B.3.

3). Indirect Dischargers. Wastewater treatment plants shall provide adequate notice to DEQ of any substantial change in the quantity or quality of pollutants being introduced into the privately or publicly owned treatment works and any anticipated impact the change may have on said treatment works.

Basis: VPA Permit Regulation 9VAC25-32-90.A.

4). O&M Manual Requirement. The permittee submitted for approval an Operations and Maintenance (O&M) Manual in May 2010 to the Department of Environmental Quality, Northern Regional Office (DEQ-NRO). Future changes to the facility must be addressed by the submittal of a revised O&M Manual within 90 days of said changes. Non-compliance with the O&M Manual shall be deemed a violation of the permit.

Basis: Code of Virginia §62.1-44.19
Sewage Collection and Treatment Regulations, 9VAC25-790

5). CTC, CTO Requirement. Requires that all treatment works treating wastewater obtain a Certificate to Construct prior to commencing construction and to obtain a Certificate to Operate prior to commencing operation of the treatment works.

Basis: Code of Virginia § 62.1-44.19
Sewage Collection and Treatment Regulations, 9VAC25-790

6). Licensed Operator Requirement. Requirement for the licensure of operators. This facility requires a Class IV operator.

Basis: Code of Virginia at §54.1-2300 et seq.
VPA Permit Regulation, 9VAC25-32-190.
Rules and Regulations for Waterworks and Wastewater Works Operators (18VAC160-20-10 et seq.)

7). Reliability Class. This requires sewage treatment works to achieve a certain level of reliability in order to protect water quality and public health consequences in the event of component or system failure. Reliability means a measure of the ability of the treatment works to perform its designated function without failure or interruption of service. The facility is required to meet reliability Class II.

Basis: Sewage Collection and Treatment Regulations at 9VAC25-790

8). Sludge Management Plan and Reopener. The permittee shall conduct all sewage sludge use or disposal activities in accordance with the approved Sludge Management Plan (SMP). The SMP is an enforceable part of the permit. The permit shall be modified or alternatively revoked and reissued to incorporate limitations/conditions necessitated by substantial changes in sewage sludge use or disposal practices.

Basis: VPA Permit Regulation 9VAC25-32-100.5.

9). Facility Closure Plan. A closure plan shall be developed prior to termination of the pollutant management activities covered under this permit. The permittee shall submit the closure plan to DEQ-NRO for review and approval 90 days prior to implementation.

Basis: Current VPA Permit Manual

10). Materials Handling/Storage. Materials and waste products are to be stored in such a manner as to prevent their discharge to state waters.

Basis: Current VPA Permit Manual

11). Site Specification. Wastewater shall be applied only at the sites identified in **Attachment 4**.

Basis: OWPP Interim Guidance Memo 01-2005 – Spray Irrigation and Reuse of Wastewater

12). Effluent Application Rates. Application rates in terms of depth of effluent applied to the site shall not exceed 0.25 inch per hour, 1 inch per day and 2 inches per week or the monthly maximum loading rates shown in **Attachment 5**. However, during periods of low precipitation amounts, the permittee shall apply effluent to the crop in sufficient amounts in order to maintain a viable stand.

Basis: Sewage Collection and Treatment Regulations at 9VAC25-790-880.G.9.
Best Professional Judgement

13). Operational Requirements. For all land treatment of wastewater, the following shall be required:

a. There shall be no application of wastewater to the ground when it is saturated, frozen or covered with ice or snow and during periods of rainfall.

b. The chosen method of wastewater application shall minimize human contact with the wastewater.

c. Application or irrigation systems used for land treatment of wastewater shall be designed, installed and adjusted to:

1. Provide uniform distribution of wastewater over the land treatment site;

2. Prevent ponding or pooling of wastewater at the land treatment site;

3. Facilitate maintenance and harvesting of the land treatment site and precludes damage to the application or irrigation system from the use of maintenance or harvesting equipment;

4. Prevent aerosol carry-over from the land treatment site to areas beyond the setback distances described in Part I.B.19.; and

d. Any wastewater runoff shall be confined to the land application site.

Basis: Current VPA Permit Manual

14). Groundwater Monitoring. The Board is authorized to request information needed to determine if the management of pollutants may have possible impacts on the groundwater. Groundwater monitoring for parameters of concern will indicate whether possible lagoon seepage or the irrigation site is resulting in violations to the State Water Control Board's Ground Water Standards. Review of data collected during the last permit term was inconclusive and did not indicate any impacts on groundwater. Therefore, it is staff's best professional judgement that groundwater monitoring continue; however, at a reduced frequency of twice per year.

Basis: Sewage Collection and Treatment Regulations at 9VAC25-790-880.H.4.
State Water Control Law § 62.1-1-44.21

15). Nutrient Loading Rate. The annual PAN application rate for the irrigation site cannot exceed the maximum annual recommendation of 250 pounds/acre/year for Orchardgrass as stated in the Department of Conservation and Recreation, Virginia Nutrient Management Standards and Criteria (**Attachment 6**). If the crop grown on the irrigation site is changed, updated PAN application rate information and nitrogen fertilizer recommendations shall be submitted to DEQ-NRO for approval within 90 days of the change.

In addition, the annual Phosphorus application rate shall not exceed the crop removal of 16 pounds per yield in tons for Orchardgrass.

Basis: Virginia Nutrient Management Standards and Criteria, October 2005
Best Professional Judgement

16). Freeboard Requirements. All wastewater storage facilities shall maintain one foot of freeboard at all times, up to and including a 25-year, 24-hour storm.

Basis: Current VPA Permit Manual

17). Quarterly Summary Report. A summary report of the previous quarter's activities shall be prepared and submitted to the DEQ Northern Regional Office by the 10th day of the following month. Quarters are defined as 1 January – 31 March; 1 April – 30 June; 1 July – 30 September; and 1 October – 31 December. Reports shall include:

a. Analyses of composite samples of municipal wastewater land applied during the previous quarter in accordance with Parts I.A.1.

b. Results of soils and groundwater monitoring, as applicable, in accordance with Part I.A.2 and Part I.A.3., respectively, of the permit.

c. Land Application Site information describing the wastewater applied to each field during the previous quarter.

d. A summary of the quantities of wastewater stored in or withdrawn from storage facilities and the remaining storage capacity.

e. A summary of staff gauge readings demonstrating freeboard maintenance.

f. A summary of spray head utilization demonstrating compliance with the hydraulic loading schedule of the O&M Manual.

Basis: OWPP Interim Guidance Memo 01-2005 – Spray Irrigation and Reuse of Wastewater
Current VPA Manual

18). Annual Project Summary Report. An annual project summary report shall be prepared and submitted to the DEQ Regional Office by 10th of February of each year and shall include the following:

a. A summary of the monitoring data results including wastewater, soils and groundwater analyses.

b. The yearly water balance showing inputs to and drawdown from storage facilities.

c. Land application site information describing the wastewater applied to each field during the previous year with the annual and cumulative loading limiting constituents specified in Part I.A of the permit and the remaining site life for each field.

d. A summary of the agronomic practices which occurred during the preceding growing season, including but not limited to, the timing and number of crop cuttings and an estimate of total crop yield (bushel/acre or tons/acre) removed from each field; any lime, fertilizer or soil amendment applications made to a field other than that in the wastewater applied to the same field (describe type and quantities); and reseeding.

e. A general statement of past system performance and the status of the permitted facilities with regard to complying with Virginia Pollution Abatement Permit requirements.

Basis: OWPP Interim Guidance Memo 01-2005 – Spray Irrigation and Reuse of Wastewater
Current VPA Manual

19). Buffer zones. The following minimum buffer zones with not less than 60% vegetative cover of the soil surface shall be maintained from the site of wastewater application to the features noted below:

BUFFER ZONES	
Buffered Feature	Minimum Distance (feet)
Drinking water supply wells or springs	100
Occupied dwellings	100
Property lines	50
Surface water courses (including dry ditches)	50
All improved roadways	25
Rock outcrops (excludes limestone outcrops)	25
Limestone outcrops	50

Basis: OWPP Interim Guidance Memo 01-2005 – Spray Irrigation and Reuse of Wastewater

20). Wind Restriction. Land Application of waste waters or highly liquid sludges shall not occur during winds of sufficient strength to cause overspray or drifting of aerosols into or beyond the buffer zones.

Basis: Current VPA Permit Manual

21). Slope Limitations. Irrigation of wastewater to new fields should only occur on land with a maximum slope of 5%. If it is necessary to irrigate areas with steeper slopes, special precautions shall be taken to prevent seepage or runoff of effluent to surface waters. Land application of wastewater cannot occur on slopes exceeding 12% grade.

Basis: Sewage Collection and Treatment Regulations at 9VAC25-790-880.I.

22). Crop Harvest. The permittee shall harvest hay grown of the land application sites as outlined in the approved O&M Manual. Hay that has been harvested and baled shall not remain on site during or after the growing season.

Basis: Best Professional Judgement

23). Irrigation Schedule. Irrigation of wastewater shall not occur between 15 November and 15 March of each year as this is the optimal period of growth and uptake by the crop.

Basis: Best Professional Judgement

24). Crop Selection. Crops to be consumed raw by humans shall not be grown of the land application site.

Basis: Sewage Collection and Treatment Regulations at 9VAC25-790-880.H.6.

25). Vegetative Cover. The permittee shall maintain a complete grass cover on the irrigation site through liming, fertilizing, reseeding and weed control as necessary.

Basis: Best Professional Judgement

26). Human and Livestock Access. The irrigation site shall be adequately enclosed with suitable fencing and posted to prevent livestock and human access. Dairy animals and beef cows shall not be allowed on the irrigation site within 60 and 30 days following wastewater application, respectively. Dairy animals and beef cows shall not be allowed to consume green chopped forage from the irrigation site if it is removed within 60 and 30 days following wastewater application, respectively.

Basis: Sewage Collection and Treatment Regulations at 9VAC25-790-880.H.3.
Best Professional Judgement

27). Berm Maintenance. The permittee shall properly maintain all wastewater lagoon berms by mowing, prohibiting tree and shrub establishment and removal of burrowing animals.

Basis: OWPP Interim Guidance Memo 01-2005 – Spray Irrigation and Reuse of Wastewater
Best Professional Judgement

28). Report Certification. All monitoring reports submitted to DEQ-NRO shall include a signed VPA monitoring Report Certification.

Basis: VPA Permit Regulation 9VAC25-32-70.

C. Changes to the Permit:

- The groundwater monitoring frequency was reduced from quarterly to semi-annually.
- The Cation Imbalance Plan special condition was removed.
- The Wind Restriction special condition was added.
- The required freeboard was changed from two feet to one foot to reflect current agency guidance.
- The following parameters were removed from the groundwater monitoring requirements: Fecal coliform; Total coliform; Ammonia; Hardness; Phosphorus; TKN; TOC; Sodium; Boron; Cadmium; Chromium; Copper; Lead; Mercury; Nickel; Zinc. The previous 10 years has shown that these are not pollutants of concern and not good indicators.
- The bacteria indicator species was changed to *E. coli*.
- The metal parameters were changed from the dissolved phase to the total recoverable.
- Special Condition 12 contains a second part that states that during periods of low precipitation, the permittee shall apply effluent in sufficient amounts in order to maintain a viable crop.

D. Public Notice Information per 9 VAC 25-32-120.B: All pertinent information regarding the draft permit and application is on file at the DEQ – Northern Regional Office and may be reviewed and copied by contacting Douglas Frasier at 13901 Crown Court; Woodbridge, VA 22193; Telephone No. (703) 583-3873; Douglas.Frasier@deq.virginia.gov (**Attachment 7**).

DEQ accepts comments by email, fax or postal mail. All comments must be in writing and be received by DEQ during the comment period. Written comments must include: (1) the names, mailing addresses and telephone numbers of the person commenting and of all people represented by the citizen; (2) if a public hearing is requested, the reason for holding a hearing, including associated concern; and (3) a brief, informal statement regarding the extent of the interest of the person commenting, including how the operation of the facility or activity affects the citizen. DEQ may hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the proposed permit. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

E. Attachments:

Attachment 1	Site Inspection
Attachment 2	Treatment System Diagram
Attachment 3	Topographic Map
Attachment 4	Irrigation Site Location
Attachment 5	Available Capacity
Attachment 6	PAN/Phosphorus Application Rate
Attachment 7	Public Notice

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
NORTHERN REGIONAL OFFICE
13901 Crown Court, Woodbridge, Virginia 22193
(703) 583-3800 Fax (703) 583-3821
www.deq.virginia.gov

Douglas W. Domenech
Secretary of Natural Resources

David K. Paylor
Director

Thomas A. Faha
Regional Director

June 24, 2011

Mr. Joe Tackett
Regional Operations Manager
American Water
605 Lake Caroline Dr.
Ruther Glen, VA 22546

Re: Fort A.P. Hill – Cook Camp STP– VPA00008

Dear Mr. Tackett:

Attached is a copy of the technical inspection report generated from observations made while conducting a Facility Technical Inspection at the Fort A.P. Hill, Cooke Camp - Sewage Treatment Plant (STP) on June 20, 2011. This letter is not intended as a case decision under the Virginia Administrative Process Act, Va. Code § 2.2-4000 *et seq.* (APA). The water compliance staff would like to thank you and Mr. William Reilly for your time and assistance during the inspection.

A summary of the technical inspection is attached. Please submit an update of the Operations and Maintenance (O&M) Manual to include the new SCADA and land application timing systems if you have not already done so.

If you have any questions or comments concerning this report, please feel free to contact me at the Northern Regional Office at (703) 583–3896 or by email at ellizabeth.biller@deq.virginia.gov.

Sincerely,

Beth Biller

Beth Biller
Biosolids Permit Writer

cc: Permits/DMR file
cc via e-mail: Compliance Manager, Compliance Auditor

Attachment 1

Virginia Department of Environmental Quality

WASTEWATER FACILITY INSPECTION REPORT

FACILITY NAME: Fort A.P. Hill Cooke Camp		**INSPECTION DATE:**	June 20, 2011
		INSPECTOR:	Beth Biller
PERMIT No.: VPA00008		**REPORT DATE:**	June 23, 2011
TYPE OF FACILITY: ☑ Municipal ☑ Small Minor ☐ Industrial ☐ Federal		**TIME OF INSPECTION:**	Arrival: 0855 hrs / Departure: 1015 hrs
		TOTAL TIME SPENT (including prep & travel)	15 Hours
PHOTOGRAPHS: ☑ Yes ☐ No		**UNANNOUNCED INSPECTION?**	☐ Yes ☑ No
REVIEWED BY / Date: Edward L. Hurt 6/23/11			
PRESENT DURING INSPECTION: Joe Tackett, Regional Operations Manager, American Water; Bill Reilly, Chief Operator, American Water			

TECHNICAL INSPECTION

INSPECTION OVERVIEW AND CONDITION OF TREATMENT UNITS

TECHNICAL SUMMARY

Comments from the site visit on February 24, 2010: **Updates in BOLD**:

- Vegetation around the ponds and on the banks inside the fence must be kept cut back to discourage colonization by burrowing animals. Burrows can damage the sides of the ponds and compromise the structure's integrity. Fill in burrows and repair the damage to the banks of the ponds. **The vegetation around the ponds has been maintained and the holes have been repaired (photos 5-6)**.

Lab Operations:

- **Samples are sent to EnviroCompliance Laboratory for compliance monitoring requirements.**

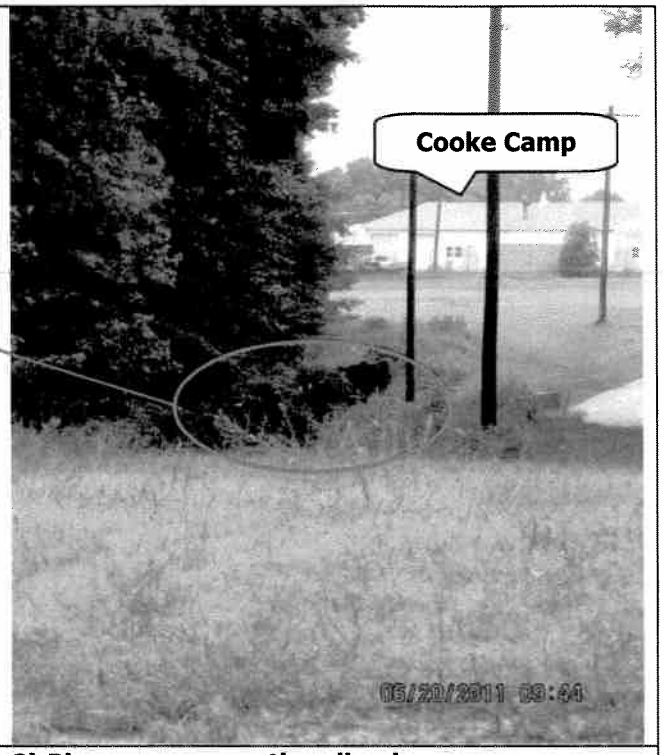
Plant Operations:

- **A new SCADA system has been installed to monitor the levels of the ponds. The system records pond levels every two minutes and reports those levels to the Wilcox Facility. (Photos 7-8)**
- **No odor was detected.**
- **Ponds met minimum freeboard requirement.**
- **The collection system pipe from Cooke Camp to the plant manhole has been relined.**
- **Burrow holes have been repaired and seeded.**
- **The grease traps were pumped approximately two years ago – silt was the major component of the pump out.**

Land Application Activities:

- **A new timing unit has been installed (Photo 9) to provide more control of land application activities.**
- **The land application site has 14 spray heads with individual valves for control.**
- **Land application of wastewater occurs as needed to maintain both the crop and the freeboard in the ponds.**
- **Hay is cut twice per year and used on Post.**
- **Signs are being replaced as necessary, the new signs are blue/purple to meet the regulation requirements.**

1) Manhole from Camp to treatment plant

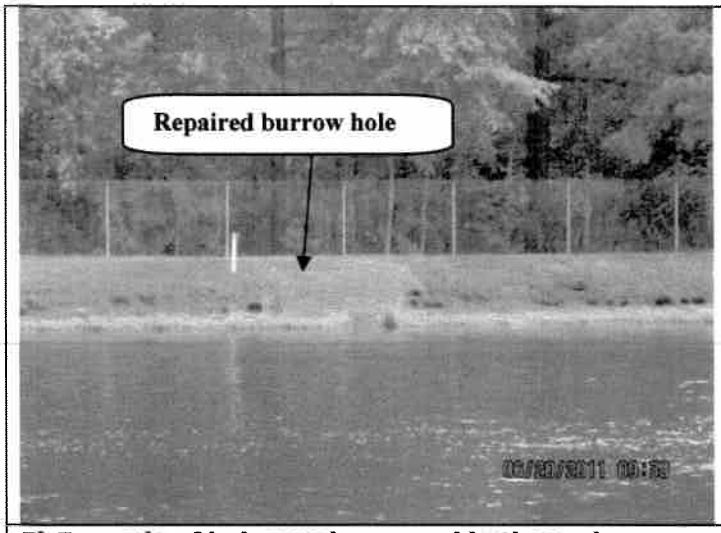


2) Pipes were recently relined

3) Pond 1

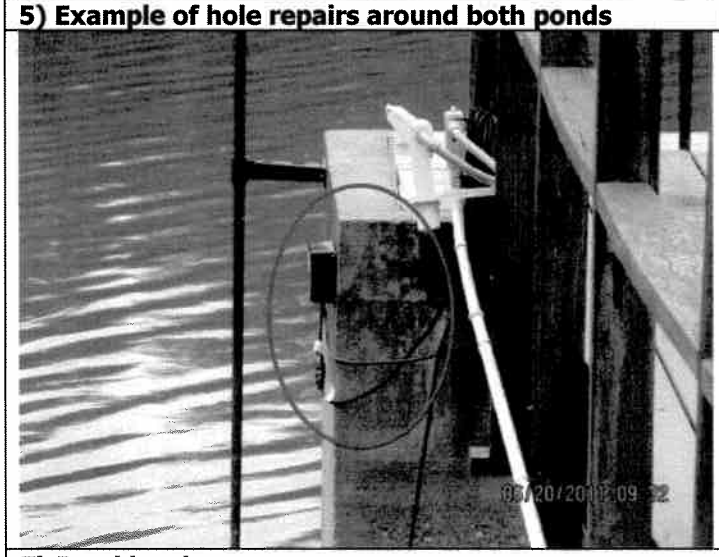
4) Pond 2

VPA00008 Fort A.P. Hill – Cooke Camp
Photos Taken By: Beth Biller
Photos Taken: June 20, 2011

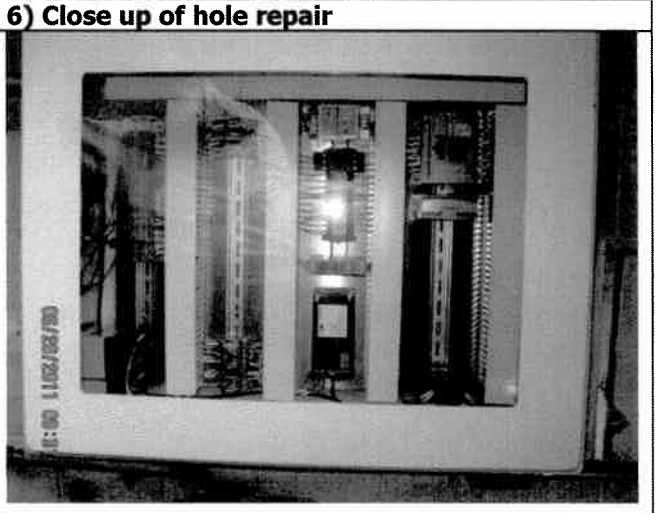


5) Example of hole repairs around both ponds

6) Close up of hole repair

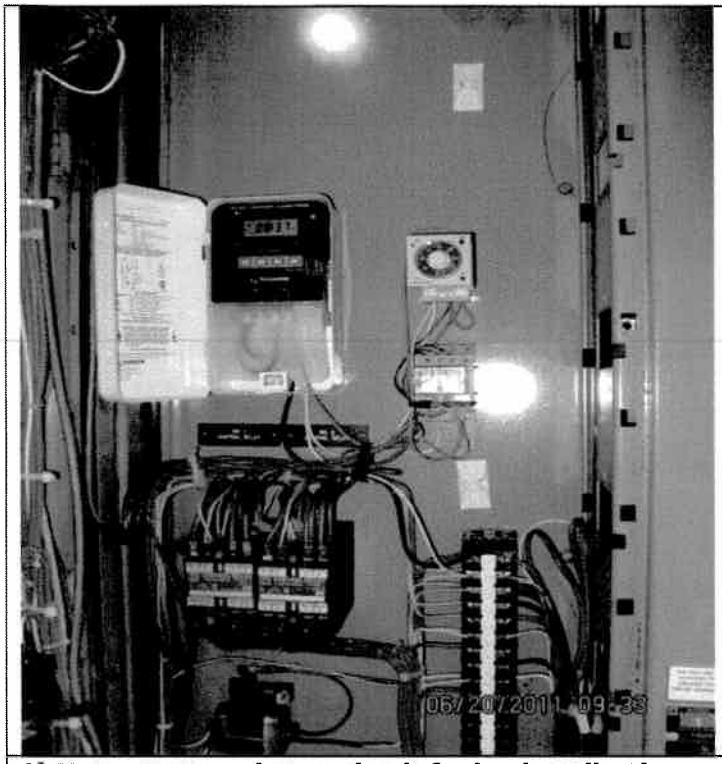


7) Pond level sensor

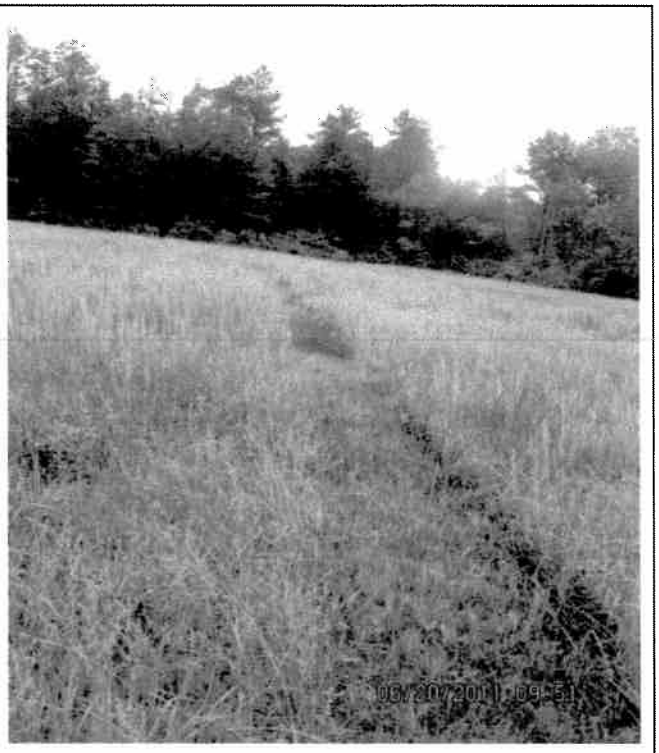


8) New SCADA system for pond levels

VPA00008 Fort A.P. Hill – Cooke Camp
Photos Taken By: Beth Biller
Photos Taken: June 20, 2011



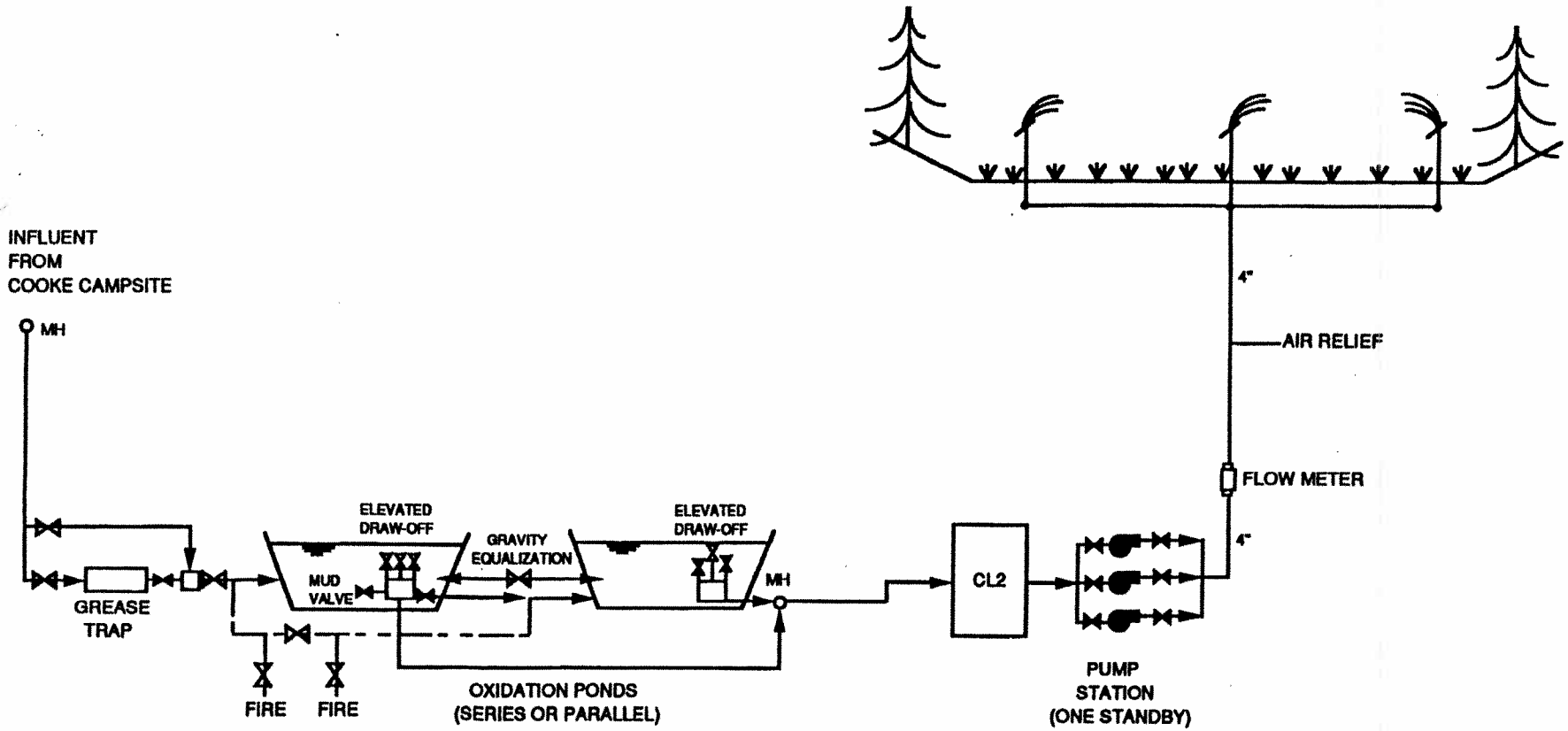
9) New automated control unit for land application



10) Access path through land application site

11) 1 of 14 spray heads

12) Caution Signs along perimeter of fence



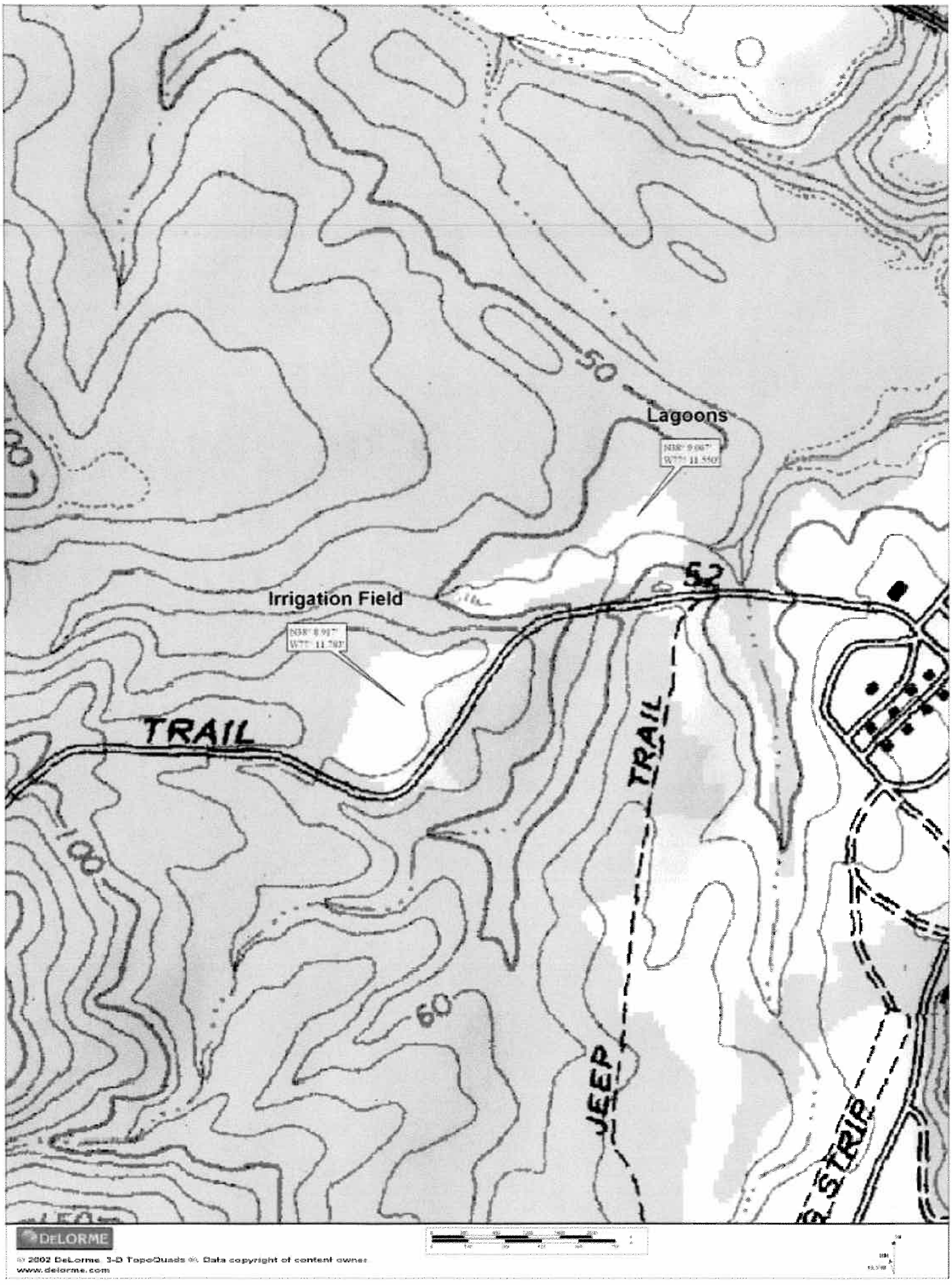
LEGEND

- STANDBY PUMP
- VALVE
- BYPASS LINE FOR PARALLEL OPERATION
- MANHOLE

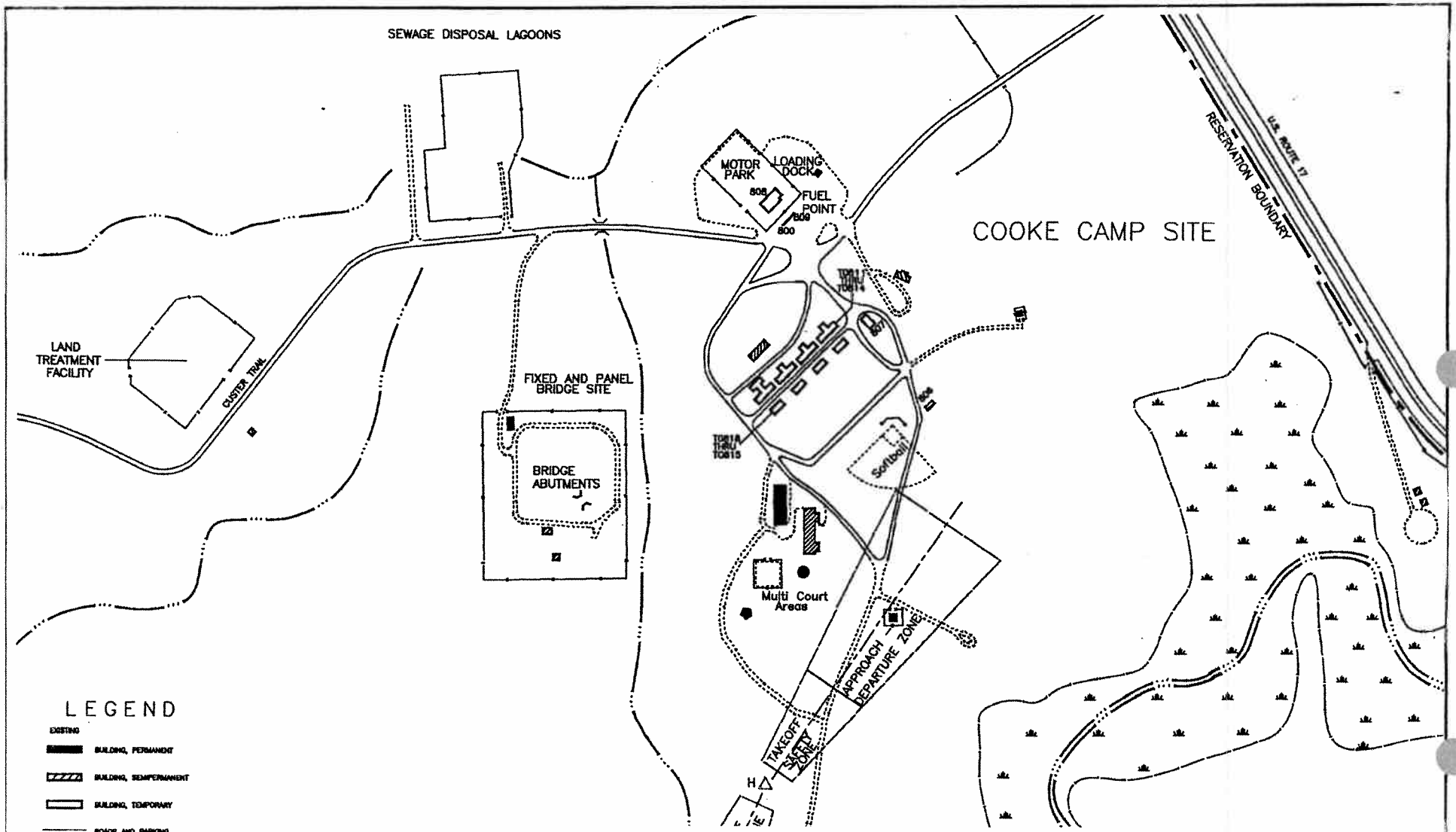
Fort A.P. Hill – Bowling Green, Virginia	
Figure 1	Scale: No Scale
Cooke Campsite Wastewater Treatment System Flow Diagram	
Source: Cooke Campsite O&M Manual, Metcalf & Eddy, 1992	

URS Dames & Moore
5540 Falmouth Street, Suite 201
Richmond, VA 23230

Attachment 2



Attachment 3



Fort A.P. Hill – Bowling Green, Virginia

Figure 4	Scale: As shown

Cooke Campsite Wastewater Treatment System Site Plan

Source: Master Plan Site Maps, R&K Engineering, 1995

URS Dames & Moore
5540 Falmouth Street, Suite 201
Richmond, VA 23230

Attachment 4

ATTACHMENT A

Estimate of Average Monthly and Seasonal Water Capacity of the Soils at the Cooke Campsite Spray Irrigation Fields

	Evapo-transpiration inches/acre [1]	Precipitation inches/acre [2]	Percolation inches/acre [3]	Available Capacity inches/acre [4]
April 15	2.11	3.11	4.32	3.32
May	3.80	3.86	8.93	8.87
June	5.23	3.79	8.64	10.08
July	6.11	4.02	8.93	11.02
August	5.46	3.58	8.93	10.81
September	3.83	3.95	8.64	8.52
October	2.04	3.59	8.93	7.38
November 15	0.41	1.70	4.32	3.03

Annual available capacity: **63.03 inches/acre**

1,711,517 gal/year/acre

4,449,944 gal/year/2.6 acres

[1] Evapotranspiration data from Virginia State Climatology Office. ET data from Fredericksburg, station nearest to Fort A.P. Hill.

[2] Mean precipitation values from Corbin, VA station (Natural Resources Conservation Service).

[3] Percolation of 0.58 in/day (2% of the minimum permeability for Altavista soils (0.6-2.0 in/hour).

[4] Annual available capacity calculated using the hydraulic loading rate formula (A. Westernik – DEQ 2001):

$L_w = ET - P_r + P_w$

Where:

L_w = wastewater hydraulic loading rate (available capacity)

ET = evapotranspiration rate

P_r = precipitation rate

P_w = percolation rate

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a proposed permit from the Department of Environmental Quality that will allow the spray irrigation of treated municipal wastewater in Caroline County, Virginia.

PUBLIC COMMENT PERIOD: June 30, 2011 to 5:00 p.m. on August 1, 2011

PERMIT NAME: Virginia Pollution Abatement issued by DEQ, under the authority of the State Water Control Board.

APPLICANT NAME, ADDRESS AND PERMIT NUMBER:	American Water Operations & Maintenance 1025 Laurel Oak Road, Voorhees, NJ 08043 VPA00008
NAME AND ADDRESS OF PERMITTED ACTIVITY:	Cooke Campsite STP Fort A.P. Hill, Bowling Green, VA 22427

PROJECT DESCRIPTION: American Water Operations & Maintenance has applied for a reissuance of a permit for land irrigation of treated effluent. The permit will allow the applicant to use treated wastewater for irrigation of 2.6 acres of land at a controlled rate. DEQ's preliminary decision is to approve the permit.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by email, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: Douglas Frasier; Northern Regional Office; 13901 Crown Court, Woodbridge, VA, 22193; Phone: 703-583-3873; email: Douglas.Frasier@deq.virginia.gov; Fax: 703-583-3821. The public may review the draft permit and application at the DEQ office named above by appointment or may request electronic copies of the documents from the contact person listed above.

Attachment 7